

REMARKS

Claims 1, 3-5, 9-32 and 34-60 are pending in the above-captioned patent application after this amendment. Claims 1, 3-6, 9-11, 15-32 and 34-55 are rejected. Claims 7 and 12-14 are objected to.

The Applicant respectfully disagrees with the rejection of claims 1, 3-6, 9-11, 15-32 and 34-55. However, the Applicant has amended claims 1, 12-14, 18-20, 31, 32, 37, and 43; added new claims 56-60; and claims 6 and 7 have been cancelled without prejudice with this amendment for the purpose of expediting the patent application process in a manner consistent with the goals of the Patent Office (65 Fed. Reg. 54603), and/or to clarify what the Applicant regards as the present invention.

Support for the amendments to the claims and the new claims can be found throughout the originally filed specification. In particular, support for the amendments to claims 1, 20, 37, and 43 can be found in original claim 7, and in Figures 4A-5C. Support for the amendments to claims 18, 19, 31, and 32 can be found in the specification at page 27, line 23- page 28, line 14.

Claim 12 has been rewritten independent form to include the limitations of claim 1. Accordingly, the scope of claim 12 has not been changed. Claim 13 has been rewritten independent form to include the limitations of claim 1. Accordingly, the scope of claim 13 has not been changed. Claim 14 has been rewritten independent form to include the limitations of claim 1. Accordingly, the scope of claim 14 has not been changed.

No new matter is believed to have been added by this amendment. Reconsideration of the pending application is respectfully requested in view of the above-recited amendments and the arguments set forth below.

Interview Summary

On September 28, 2006, the undersigned attorney for the Applicant conducted a telephonic interview with the Examiner, Erik D. Preston. The rejection of independent claims 1 and 20 were discussed during the interview. No agreement was reached.

Allowable Subject Matter

Claims 7 and 12-14 were found to contain allowable subject matter.

Claim 1 has been rewritten to include the limitations of claims 6 and 7. Accordingly, claim 1 is considered to be in condition for allowance. Claims 3-5, 9-11, and 15-19

depend upon claim 1. Accordingly, claims 3-5, 9-11, and 15-19 are considered to be in condition for allowance.

Claim 12 has been rewritten in independent form to include the limitations of claim 1. Accordingly, claim 12 is considered to be in condition for allowance.

Claim 13 has been rewritten in independent form to include the limitations of claim 1. Accordingly, claim 13 is considered to be in condition for allowance.

Claim 14 has been rewritten in independent form to include the limitations of claim 1. Accordingly, claim 14 is considered to be in condition for allowance.

Rejections Under 35 U.S.C. §102(b)

Claims 1, 3-5, 9-11, 20, 34-38 and 43-50

Claims 1, 3-5, 9-11, 20, 34-38 and 43-50 are rejected under 35 U.S.C. §102(b), as being anticipated by U.S. Patent No. 6,313,556 issued to Dombrovski et al. ("Dombrovski et al."). The Applicant respectfully traverses the rejection of claims 1, 3-5, 9-11, 20, 34-38 and 43-50, and the Applicant respectfully requests that the rejection of claims 1, 3-5, 9-11, 20, 34-38 and 43-50 under 35 U.S.C. §102(b), as being anticipated by Dombrovski et al., be withdrawn.

More particularly, the Examiner contends that Dombrovski et al. teaches in Figure 1, a mover including an outer surface, said mover having a magnet component (72) and a conductor (52), said mover defining a first passageway (76, 78) and a second passageway (44) including an inlet, the first passageway encircling a portion of the second passageway, and a circulation system (16, 20) comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature, and wherein the second fluid is approximately boiling at the inlet (the cryogenic fluid used in this system would inherently be boiling at least during the initial operation of the device). The Examiner further contends that Dombrovski et al. teaches additional features as claimed in the present invention.

The Applicant provides that Dombrovski et al. is directed to a superconducting electromechanical rotating (SER) device 10 including: a rotor 14; a cryogenic refrigeration system 16 which cools the windings of the rotor 14; a stator 18 that coaxially surrounds the

rotor 14 and drives the rotor 14 to rotate upon receiving an excitation current; a water cooler 20; and a power source 22. The rotor 14 includes a rotor winding 52, which is cooled by the cryogenic fluid so as to be rendered superconductive; a coil support structure 56; and a vacuum jacket 54, which thermally insulates them from the environment. The cryogenic refrigeration system 16 is linked to the interior of the rotor 14 via respective supply and return conduits 44 and 46. The refrigerant supplied by the cryogenic refrigeration system 16 may be any suitable cryogenic fluid such as gaseous helium, liquid nitrogen, liquid neon, or liquid oxygen, which is pumped through the coil support structure 56 via the supply and return conduits 44 and 46 to cool the rotor winding 52. The stator 18, which includes a stator winding 72 and a support structure 74, is cooled by circulating a liquid coolant such as water through the stator 18 in a closed loop via supply and return conduits 76 and 78 extending between the water cooler 20 and the stator 18. The water cooler 20 may comprise an assembly which is capable of drawing heated water away from the stator 18 via the return conduit 78, cooling the heated water to a temperature, for example, near, at or below ambient temperature, and returning the cooled water to the stator 18 via the supply conduit 76. (Dombrovski et al. Abstract, column 1, lines 24-33, column 2, lines 37-48, column 4, line 42 through column 5, line 49, and column 8, line 66 through column 9, line 7, and in Figure 1).

However, the Applicant contends that Dombrovski et al. does not disclose a mover combination including a mover having an outer surface, and a circulation system having a fluid source that controls the temperature and flow of a first fluid so that the temperature of the outer surface of the mover is approximately equal to an ambient temperature. The SER device 10 in Dombrovski et al. includes a first passageway (supply and return conduits 76 and 78) that at least partly encircles a portion of a second passageway (supply and return conduits 44 and 46), wherein the first passageway uses a liquid coolant such as water to cool the stator 18, and wherein the second passageway uses a cryogenic fluid to cool the rotor windings 52. However, in Dombrovski et al., the water cooler 20 does not teach or disclose controlling the temperature and flow of the first fluid so that the temperature of the outer surface of the SER device 10 is approximately equal to an ambient temperature. Admittedly, the water cooler 20 may comprise an assembly which cools the heated water to a temperature near, at or below ambient temperature, before

returning the cooled water to the stator 18 via the supply conduit 76. However, once the ambient temperature water is returned to the stator 18, the water will immediately get heated above ambient temperature as it comes in contact with the stator 18 in the process of cooling the stator 18. As a result thereof, Dombrovski et al. does not disclose controlling the outer surface to be approximately equal to an ambient temperature.

Further, Dombrovski et al. does not disclose a first passageway and a second passageway in the conductor component.

Moreover, Dombrovski et al. does not disclose a circulation system which controls the second fluid to be approximately boiling at the inlet. Dombrovski et al. merely teaches the use of a cryogenic fluid for cooling the windings of the rotor 14. This does not support the position of the Patent Office that the cryogenic fluid inherently will be boiling at least during the initial operation of the device.

Additionally, the Applicant contends that Dombrovski et al. does not disclose a mover including a sealed second passageway. As discussed above, both the first passageway and the second passageway of Dombrovski et al. have supply conduits 44, 76 and return conduits 46, 78, which require the passageways to be open to the fluid sources. In certain embodiments of the present invention, a fluid is present inside the sealed second passageway, but the second passageway is sealed so as to prevent flow of fluid to or from a fluid source. The fluid in the present invention is simply maintained within the sealed second passageway.

Regarding claims 1, 3-5, and 9-11, the rejection of these claims is believed to be overcome as detailed in the Allowable Subject Matter section provided above.

In distinction to Dombrovski et al., claim 20 is directed to a "mover combination comprising: a mover including a magnet component, and a conductor component, the mover also including a first passageway and a sealed second passageway, the second passageway being filled with a second fluid that is not actively circulated; wherein the passageways are positioned within the conductor component; and a fluid source that circulates a first fluid through the first passageway."

Because Dombrovski et al. does not disclose all of the elements of claim 20, the §102(b) rejection of claim 20 is unsupported by the art and should be withdrawn.

Additionally, in distinction to Dombrovski et al., claim 37 of the present application

recites “(a) method for making a mover combination ... comprising the steps of: (i) providing a mover having an outer surface, a magnet component and a conductor component, the mover including a first passageway having a first inlet and a second passageway having a second inlet, the first passageway at least partly encircling a portion of the second passageway; wherein the passageways are positioned within the conductor component; and (ii) controlling the temperature of the outer surface of the mover so that it is approximately equal to an ambient temperature by directing a first fluid from a fluid source into the first inlet; and directing a second fluid from the fluid source into the second inlet, wherein a temperature of the second fluid at the second inlet is approximately equal to the boiling temperature of the second fluid at an absolute pressure within the second passageway.”

Because Dombrovski et al. does not disclose all of the elements of claim 37, the §102(b) rejection of claim 37 is unsupported by the art and should be withdrawn. Because claims 34-36 and 38 depend either directly or indirectly upon amended claim 37, the rejection of claims 34-36 and 38 under 35 U.S.C. §102(b) is also unsupported by the art and should be withdrawn.

Still further, in distinction to Dombrovski et al., claim 43 of the present application recites “(a) method for controlling the temperature of a mover ... comprising the steps of: providing a first passageway in the conductor component of the mover, the first passageway having a first inlet; providing a sealed second passageway in the conductor component of the mover, the second passageway being filled with a second fluid that is not actively circulated; and circulating a first fluid from a fluid source through the first passageway.”

Because Dombrovski et al. does not disclose all of the elements of claim 43, the §102(b) rejection of claim 43 is unsupported by the art and should be withdrawn. Because claims 44-50 depend either directly or indirectly upon claim 43, the rejection of claims 44-50 under 35 U.S.C. §102(b) is also unsupported by the art and should be withdrawn.

Claims 20-26 and 43-49

Claims 20-26 and 43-49 are rejected under 35 U.S.C. §102(b), as being anticipated by U.S. Patent No. 4,126,798 issued to Carr, Jr. et al. (“Carr, Jr. et al.”). The

Applicant respectfully submits that the rejection of claims 20 and 43, as amended, is unsupported by the art and should be withdrawn.

More particularly, the Examiner contends that Carr, Jr. et al. teaches in Figures 2 and 5, a mover including a magnet component (30) and a conductor (25), said mover defining a first passageway in the mover and a sealed second passageway (26) in the mover, the second passageway being filled with a second fluid that is not actively circulated; and circulating a first fluid from a fluid source through the first passageway. The Examiner further contends that Carr, Jr. et al. teaches additional features as claimed in the present invention.

The Applicant provides that Carr, Jr. et al. is directed to in Figures 2-5, a generator 10 comprising a rotor assembly 20 and a stator assembly 30 which are enclosed in a housing 40. The rotor assembly 20 comprises a superconductive direct current field winding 25 which is wound about a nonferromagnetic core 26, whereas the stator assembly 30 supports a non-superconductive winding 35. Cooling of the stator assembly 30 is accomplished by passing oil on the outside of the conductor insulation through cooling ducts 33 located outside of the coil insulation. The rotor assembly 20 and a dewar vessel 27 provide a barrier for the permanently sealed vacuum environment surrounding the field winding, with the dewar vessel 27 being maintained at a temperature near absolute zero by a cryogenic fluid introduced into the interior of the dewar vessel 27 through a conduit 70 that extends through the housing endplate 42. The superconductive winding 25 is disposed between non-magnetic wedge members 18 upon a cylindrical rotor tube 26. Cooling to superconductive temperatures is provided by discrete ducts disposed within the field winding 25, with the cooling ducts directing the flow of a suitable cryogenic fluid through the active length of the winding 25. The superconductive field winding 25 consists of six coils 11-16, with each of the coils 11-16 consisting of a plurality of superconductive turns disposed between wedge members 18 about the rotor tube 26 which has an air core. (Carr, Jr. et al. column 3, line 67 through column 4, line 21, column 4, lines 38-49, column 4, line 59 through column 5, line 14, column 5, lines 27-38, column 5, lines 46-59, and in Figures 2-5).

However, the Applicant contends that Carr, Jr. et al. does not disclose a mover including a magnet component, a conductor component, a first passageway, a fluid

source that circulates a first fluid through the first passageway, and a sealed second passageway that encircles the conductor component, wherein the second passageway is filled with a second fluid that is not actively circulated. In Carr, Jr. et al., the second passageway that is filled with a second fluid that is not actively circulated is embodied in the air core within the rotor tube 26. However, the air core of the rotor tube 26 is positioned within the rotor tube 26 and does not encircle the conductor component as claimed in the present application.

Further, Carr, Jr. et al. does not disclose a first passageway and a second passageway in the conductor component.

In distinction to Carr, Jr. et al., amended claim 20 is directed to a “mover combination comprising: a mover including a magnet component, and a conductor component, the mover also including a first passageway and a sealed second passageway, the second passageway being filled with a second fluid that is not actively circulated; wherein the passageways are positioned within the conductor component; and a fluid source that circulates a first fluid through the first passageway.”

Because Carr, Jr. et al. does not disclose all of the elements of amended claim 20, the §102(b) rejection of amended claim 20 is unsupported by the art and should be withdrawn. Because claims 21-26 depend either directly or indirectly upon amended claim 20, the rejection of claims 21-26 under 35 U.S.C. §102(b) is also unsupported by the art and should be withdrawn.

Further, in distinction to Carr, Jr. et al., amended claim 43 of the present application recites “(a) method for controlling the temperature of a mover ... comprising the steps of: providing a first passageway in the conductor component of the mover, the first passageway having a first inlet; providing a sealed second passageway in the conductor component of the mover, the second passageway being filled with a second fluid that is not actively circulated; and circulating a first fluid from a fluid source through the first passageway.”

Because Carr, Jr. et al. does not disclose all of the elements of amended claim 43, the §102(b) rejection of amended claim 43 is unsupported by the art and should be withdrawn. Because claims 44-49 depend either directly or indirectly upon amended claim 43, the rejection of claims 44-49 under 35 U.S.C. §102(b) is also unsupported by the art

and should be withdrawn.

Rejections Under 35 U.S.C. §103(a)

Claims 15-19, 39-42 and 51-55

Claims 15-19, 39-42 and 51-55 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dombrovski et al..

As noted above, the rejection of claim 1 is unsupported by the art. Therefore, claim 1 negates a prima facie showing of obviousness with respect to the cited reference. Accordingly, claims 15-19, which directly or indirectly depend from claim 1, are patentably distinguishable over the cited reference.

Additionally, as noted above, the rejection of claim 37 is unsupported by the art. Therefore, claim 37 negates a prima facie showing of obviousness with respect to the cited reference. Accordingly, claims 39-42, which directly or indirectly depend from claim 37, are patentably distinguishable over the cited reference.

Further, as noted above, the rejection of claim 43 is unsupported by the art. Therefore, claim 43 negates a prima facie showing of obviousness with respect to the cited reference. Accordingly, claims 51-55, which directly or indirectly depend from claim 43, are patentably distinguishable over the cited reference.

Claims 28-32

Claims 28-32 are rejected under 35 U.S.C. §103(a) as being unpatentable over Carr, Jr., et al..

As noted above, the rejection of claim 20 is unsupported by the art. Therefore, claim 20 negates a prima facie showing of obviousness with respect to the cited reference. Accordingly, claims 28-32, which directly or indirectly depend from claim 20, are patentably distinguishable over the cited reference.

Claim 27

Claim 27 is rejected under 35 U.S.C. §103(a) as being unpatentable over Carr, Jr., et al. in view of Dombrovski et al..

As noted above, the rejection of claim 20 is unsupported by the art. Therefore, claim 20 negates a prima facie showing of obviousness with respect to the cited references. Accordingly, claim 27, which directly depends from claim 20, is patentably distinguishable over the cited references.

New Claims

Claims 56-60 have been added by this amendment. These claims are of a slightly different scope than the previously pending claims. However, these claims are considered to be patentable in view of the cited references.

More specifically, in contrast to the cited references, new claim 56 is directed to a "mover combination comprising: a mover including an outer surface, a magnet component and a conductor component, wherein the conductor component has a first passageway and a second passageway that is at least partly encircled by the first passageway; and a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway through an inlet to the second passageway, wherein the fluid source controls the temperature and flow of the second fluid so that the second fluid is approximately boiling at the inlet."

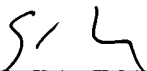
Because these features are not taught or suggested by the prior art, claim 56 is believed to be patentable. Because claims 57-60 depend upon claim 56, these claims are also believed to be patentable.

Conclusion

In conclusion, the Applicant respectfully asserts that claims 1, 3-5, 9-32 and 34-60 are patentable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at 858-456-1951 for any reason that would advance the instant application to issue.

Dated this 20th day of November, 2006.

Respectfully submitted,



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